AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

EXTENSION SERVICE

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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

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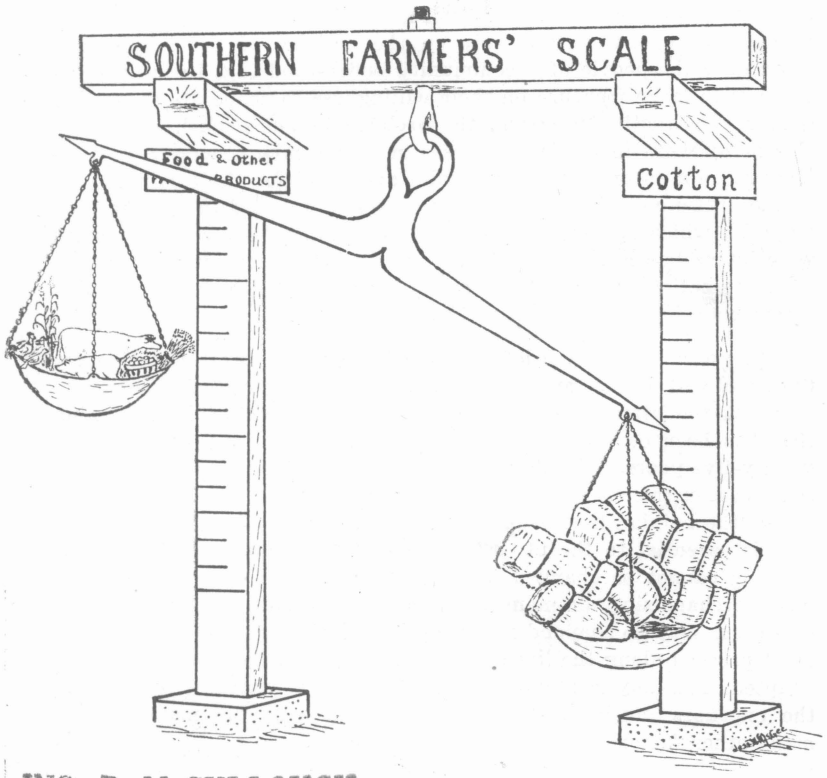
A Safer Farming Program for Texas



"Out of Balance"

JNO. P. McCULLOUGH,
Ass't County Agent,
DALLAS, TEXAS

SAFER FARMING

THE COMMUNITY AND COUNTY PROGRAM

A safer farming program is a long-time program. The development of a program on the individual farm, and the development of a program of better farming and community development involving larger areas, is best promoted by a well defined plan, a coordination of all interests involved, and the cooperation of all agencies including the churches, schools, chambers of commerce, and public welfare associations, as well as farmers' organizations. The A. and M. College, through its Extension Service has cooperated with all agencies seeking to promote community welfare work, and while there has been no fixed program with reference to plans of operation, at the same time there has been a general coordination or grouping of the activities of the various agencies with the result that all became interested in a common purpose and good has resulted. Community progress and prosperity depend very largely on the activity of the people, and when once the people of a community understand that their progress depends in large measure on their willingness to cooperate in putting over a constructive program, the problem becomes much simplified. The many ways in which all classes of people may cooperate in helping put on a safer farming program and build for the common good of the entire community or county is well illustrated in the chart on page 23, which represents a constructive effort to develop a county wide interest in a better farming program. A somewhat similar type of organization or plan has been adopted in a large number of different counties over the entire State.

In presenting this brief review of the agricultural situation for the benefit of Texas farmers the A. and M. College is only seeking to bring to the attention of Texas people a program of safe farming that has been consistently advocated by this institution for the last twenty-five years. While we realize that conditions change and that some readjustments must occasionally be made, at the same time we are of the opinion that a long-time, constructive program in agriculture is essential to the utmost success of the industry. Systems of farming cannot be changed any more readily than systems of banking, merchandising, or manufacturing. The relative acreage of various crops may be changed to some extent, but in general the program must proceed along the lines of activity to which the property is best adapted, and any contemplated changes must necessarily consider the expenses involved, the labor situation, available markets, and many other factors.

THE FARM INCOME

The main source of income on Texas farms are from cotton, wheat, oats, grain sorghum, corn and live stock or live stock products, and for this reason they must receive primary consideration in the formation of any farm program of interest to any large percentage of the farmers of this state.

Individual farms, no matter how well managed, are subject to the economic conditions resulting from the crop production over the entire State, and for this reason we must consider the production of the State as a whole.

It is a generally conceded fact that Texas farming has become unbalanced. Cotton production has been expanded at the expense of cereals and feed crops. Live stock as a farm enterprise has been neglected. Feed stuff for live stock and dairy cows has been shipped in from other States in large quantities and vast quantities of food products that could have been produced on Texas farms have been purchased on credit and must be paid for from the proceeds of the cotton crop. This unbalanced condition has been brought about by a great expansion of cotton acreage and the decrease in production of corn and other necessities on account of the prevailing high price of cotton.

Following the slump in 1920 cotton was the only staple agricultural crop of Texas that advanced in price sufficiently to make its purchasing power equivalent to what it was before 1914. In it farmers saw the hope of recouping their losses, and consequently the acreage increased very rapidly. Whenever the price for any single product becomes abnormally high and is sustained above the general average for a number of years, it inevitably results in overproduction. This situation occasioned much loss to southern farmers in the fall of 1926, and was forecast in January of that year, at which time farmers were warned of disaster impending if an exceedingly large acreage of cotton was planted in 1926. This warning, however, was not heeded. The Southern States and Texas planted the largest acreage ever devoted to cotton and harvested at least five million bales more than was necessary to keep the supply equivalent to consumption. With this enormous crop coming rapidly on the market, prices rapidly declined until they were much below the prewar level, both in purchasing power and in units of value.

The year 1926 closed with an apparent surplus of seven million bales of cotton which was carried over into the next crop year.

The purpose of this publication is to point out the unbalanced condition of agriculture in the Southern States, especially in Texas, where cotton acreage has increased at the expense of all other crops and live stock; and to offer helpful suggestions as to how a part of this acreage may be safely planted in feed and food crops or put back into fertile pastures, thus enabling farmers to increase the amount of live stock kept on their respective farms.

This graph shows the remarkable increase in cotton acreage and decrease in the acreage of corn for the year 1900 to 1926 inclusive. Note that the combined acreage of grain sorghums and corn in 1926 was only slightly in excess of the acreage of corn of 1900.

COTTON DISPLACES FEED CROPS

A glance at the chart on this page will show what has happened in Texas. From 1900 to 1908 corn acreage increased at a slightly faster rate than cotton acreage. During this period the ratio between cotton and corn ran approximately 1.4 acres of cotton to 1 acre of corn. Cotton increased at a greater rate between 1910-1913, slumped sharply on account of the War, then followed a fluctuating course until 1921, when the great expansion in acreage began. It is interesting to note that corn began to decline in 1915 and with the exception of a slight rally in 1920-1921, has continued to diminish in importance. In 1926 Texas had very nearly five acres of cotton to one acre of corn. In some measure grain sorghums have replaced corn in West Texas, yet if we add the total acreage of grain sorghums to that of corn we still would find there was a great discrepancy between the acreage of cotton and the acreage of grain sorghums and corn combined.

It is probably true that the tremendous increase in cotton acreage beginning in 1921 was due in part to the ruinously low prices of cattle, many landowners subdividing their ranch holdings into farms. Cotton acreage increased more than three million acres from 1923 to 1924. This increase was possible because of the extensive developments going on in Western Texas.

Cotton can be handled with less investment in farm machinery and equipment than any other crop. For this reason and also on ac-

count of being a crop easily sold as soon as harvested, it appeals to the land owner or farmer who makes yearly contracts. The absentee landlord is a powerful factor in increasing the cotton acreage on account of the fact that law and custom protect him in collecting the rent from a cotton crop produced on his land. As a matter of fact, there are many influences pressing on the landlord, as well as the tenant, tending to produce an increased acreage in cotton.

COTTON AS A BASIS OF CREDIT

The one crop system of farming is usually operated on a credit basis. A diversified farm with live stock, establishing an income monthly throughout the year, can operate on practically a cash basis. Where cotton is the main crop there must be credit and from the lender's standpoint cotton is looked upon as good security. It can be insured at a comparatively low rate of interest. If properly stored it will not deteriorate, and there is always a ready market at some price. Southern bankers know cotton. They are willing to risk loans to finance cotton production because cotton can quickly be converted into money. In banking circles cotton has established a reputation for being a "safe" crop and it naturally follows that bankers look to the cotton acreage as promising the surest source of income to repay loans.

COTTON WITHOUT FEED CROPS INSECURE

In times like this we are brought to a realization of how insecure farm loans can be when based on a commodity that fluctuates as wildly as cotton has during the last six months. Unpaid debts and the loss of purchasing power of cotton has affected adversely the entire business structure wherever cotton is the chief source of income and the only basis of credit. Bankers are beginning to realize that loans for purchasing pigs, calves, and cows that will help farmers make part of their living on the farm should add an element of safety to loans made for buying teams and supplies used in the production of cotton. The idea gaining ground that **the first aim of real farming is to produce the feed and family living, then strive to have a surplus which will pay debts and taxes and add to savings.** Self-supporting farmers contribute tremendously to both the financial stability and the economic security of their home communities. A bank that aids its farmer customers in becoming self-supporting is rendering good service to the community as well as building toward its own security.

WHAT IS SAFER FARMING

The Safer Farming program advocated by the A. and M. College is based on four fundamental principles:

1. The production of food for the family and feed supplies for the live stock.
2. Providing a cash income from two or more sources.
3. Producing live stock or live stock products as well as crops so as to secure better distribution of labor throughout the entire year and to lessen drain on soil fertility.
4. Increasing the efficiency of the farm.

A LIVE-AT-HOME PROGRAM

To remedy the distressing situation brought about by the loss of buying value in cotton it seems desirable to make changes that will place our agriculture on a sounder and more profitable basis. The logical starting point for such a program is to provide for the needs of every farm family on every farm. The minimum requirements in providing a live-at-home program for each family of five would be:

(a) 1 milk cow (b) 1 brood sow (c) 25 laying hens

(d) An all-the-year-round garden of at least one-half acre.

If these are provided and the surplus production of meat and vegetables conserved for future canning, the amount of food purchased from the stores will be reduced to a minimum. It would be advisable if possible to keep more than one cow, to increase the flock of chickens, and also to increase the number of hogs, for the reason that these will produce food products that can be sold to an advantage or exchanged for food products that cannot be produced on the farm. Farmers should realize the importance of not neglecting the smaller items of revenue, which in the course of a twelve months period will amount to a considerable sum. Food for the family and feed for the live stock when purchased at the store are high in price. When they are produced on the farm they cost nothing but seed and labor. When purchased at the store, the price must include freight, insurance, commissions, and profits to the men who handle them. The labor necessary to produce food and feed is on the farm, and the growing of home supplies will not interfere with the care of the cotton crop.

HEALTH OF THE FARM FAMILY

It is more important that the farm family be well fed and well nourished, strong and healthy than it is that the work stock or animals on the farm should be well taken care of. Yet, unfortunately, in many instances more attention is given to the feeding of the animals than is given to the proper nourishment of the growing children. Experiments conducted by the U. S. Department of Health in cooperation with the U. S. Department of Agriculture on plantations in the Mississippi delta have shown conclusively that screening of houses to keep out mosquitoes reduced the amount of sickness caused by malaria and greatly increased the general prosperity of the community as a whole. Numerous instances could be cited of improvement in the health of the family due to a change of diet and providing an abundance of proper kind of food as a result of the work of home demonstration agents of the Extension Service. A farm table should be provided with an abundance of the right kind of food, a large part of which can be produced on the farm much more cheaply and of more satisfactory quality than can be secured from a store. The health of the family and the growth of the children depend in large measure upon the diet which builds and repairs the body tissues, regulates the body processes, furnishes energy, and promotes growth and positive good health.

FOOD—HOW MUCH AND WHY

1. Milk, fruit and vegetables are recommended for keeping the body healthy and preventing disease. Each person should have every day:
   (a) Three glasses whole milk or its equivalent in buttermilk, butter, cottage cheese, custards, creamed vegetables, soups or ice cream.
   (b) Two raw fruits or raw vegetables, such as apples, oranges, watermelons, cantaloupe, tomatoes, lettuce, cabbage or onions.
   (c) A generous serving of one leafy vegetable, cooked or raw, such as greens from turnips, mustard, beets, Brussels sprouts, cabbage, green string beans, asparagus.
   (d) A generous serving of tomatoes, cooked or raw, at least three times a week.
2. In addition to milk, fruits and vegetables the family table should be provided with an abundance of meat, eggs, bread, potatoes, and other foods that can, in large measure, be produced on the farm.

In order to assist the housewife in providing a supply of canned fruit and vegetables sufficient to meet the needs of the family at all times when they cannot be secured fresh from the garden or orchard the following list is recommended as the minimum requirements for a family of five:

Modern methods of canning enable farm women to save annually hundreds of thousands of dollars in canned products including meat, vegetables, and fruit.

Leafy vegetables—63 cans.—This will be sufficient for nine weeks serving seven times each week. The remainder of the year fresh vegetables should be secured from the garden. These would include cabbage greens, lettuce, asparagus, onions, spinach, etc.

Other vegetables—147 cans.—This will be sufficient to serve seven times a week for twenty-one weeks. During the remainder of the year vegetables should be secured fresh from the garden or from stored or dried products. This list should include turnips, carrots, okra, peas, corn, beets, beans, cauliflower, etc.

Fruit—176 cans.—This will be sufficient to serve eleven times a week for sixteen weeks. In addition to canned fruit, a fresh supply should be obtained from the orchard or garden and may include berries, grapes, peaches, pears, cantaloupes, watermelons, plums, and figs. When a supply from the orchard is not available, fruit should be purchased in season and canned or the supply of tomatoes should be increased to make up the deficiency in fruits.

Those desiring further information as to the budget or how to can fruits and vegetables should send to the Extension Service for bulletins C-55, "Home Canning of Meat"; Farmer's Bulletin 1471, "Canning Fruits and Vegetables."

THE FAMILY GARDEN

This bulletin is designed to meet all conditions in Texas. Unfortunately on many rented farms there is no place for a garden except in the field. This is better than no garden at all, but whenever possible the garden should be on a permanent plot of about one-half acre well fenced to keep out chickens, rabbits, and the soil should be made very fertile. Rows should be spaced so as to allow for cultivation of at least the coarser crops with a horse-drawn implement. Eliminate hand work as far as possible from the garden. Plan the garden as a year around proposition. This will enable one to plant the correct vegetables at the right time in proportion to family needs. Do not plant all beans or all beats, but plant a few of each and in addition grow as many other vegetables as possible. Asparagus needs to be planted once in ten or fifteen years. It requires very little attention but will produce a great abundance of early cuttings. Strawberries should, also, have a place. Any permanent crop such as the ones mentioned should be planted so as not to interfere with the cultivation of the rest of the garden. If a surplus over the present family needs is produced it should be canned in tin cans, using a pressure steam canner. A considerable amount of surplus vegetables from the garden that is unfit for table use can profitably be fed to the family cow or the brood sow and pigs.

Under climatic conditions prevailing in nearly all parts of Texas, the proper selection of seed for planting should enable a family to produce a continuous supply of green vegetables. Fall gardens are equally as successful as spring gardens, and there are many vegetables that will thrive in the heat of midsummer. A brief out line of plantings would include the following:

Early Spring Planting

Irish potatoes	Turnips and Mustard	Beans
English peas	for greens	Onions
Radish	Beets	Tomatoes
Lettuce	Swiss chard	Watermelon
Cabbage		

Late Spring and Summer Planting

Swiss chard	Okra	Cushaw
Cucumbers	Tomatoes	New Zealand Spinach
Summer squash	Pepper	Sweet potato
Cantaloupe	Egg plant	Black-eye peas

Fall Planting

Beets	Onions	Irish potatoes (in the
Turnip greens	Lettuce	south)
Mustard greens	Radishes	Spinach
Cabbage	Cauliflower	Swiss Chard

THE FAMILY COW

A good milk cow will produce more valuable food for the farm family every day in the year than can be obtained from any other source with equal cost in cash outlay or labor. Any farm family that does not have a good cow is not well organized, and every sacrifice should be made to secure and keep at least one good cow for every farm family. Milk is an essential food. There is nothing that can be satisfactorily substituted for it in the diet of a growing child. Its food elements are equally valuable for adults, and every member of the family should consume a certain amount of milk products every day, not only for producing growth but also for protecting the health. The best results will always be secured by stirring the cream in the milk before serving it on the table. Not a drop of milk that could be used for food should be wasted. The surplus skim milk should be made into cottage cheese, which can be used in large measure as a substitute for meat.

FEED FOR THE FAMILY COW

The cow is essentially a grass eating animal, and her main supply of food should be from green forage. If this is supplied in abundance, very little grain will be required. Sudan grass or sorghum in summer, green oats or barley in winter will furnish an abundance of satisfactory food for a cow, and should be provided in event pasture such as Johnson grass or Bermuda grass is not available. Do not expect good results from a cow kept in a dry lot unless a green feed is cut and fed to her daily. If fences are not provided a cow can be staked out where she can secure an abundance of green forage Provide the cow with shade, good water, plenty of green feed, and a reasonable grain ration, and she will do her part if you give her care and attention.

It was stated above, that good pasture would furnish most of the feed requirements for the dairy cow. But if she is to be kept up with a good flow of production for a long lactation period, she should

receive a light grain ration in addition to pasture grass. A good mixture of grain is as follows: **By Weight**

1 part cottonseed meal
1 part wheat bran
2 parts ground corn or grain sorghums

Feed at the rate of 2 to 2½ pounds of the mixture for each gallon of milk production. If the cow receives only dry hay and fodder for roughage, feed 3 pounds of the mixture for each gallon of milk. It is a good practice to feed two or three pounds of hulls per day with the grain mixture, to give it bulk, which will aid in digestion.

Note: Those interested in further information concerning the feed and care of dairy cows should send to the Extension Service for bulletins.

THE FAMILY SUPPLY OF MEAT

One brood sow properly taken care of should produce two litters of pigs a year. The average number of pigs raised on Texas farms per brood sow is five. Where only one sow is kept this average would probably be increased. Hogs cannot be profitably kept on any farm unless they are properly fed. It is a common custom to feed the hogs all the garbage on the farm, but this is not a sufficient supply of food to produce the best results. Under normal conditions where only meat for the family is desired, it would probably be advisable to sell all the fall litter as soon as they are old enough to wean, and from the spring litter select four of the best pigs to feed through until the following winter for a supply of meat. A half fed pig will never make a good hog and the expense of producing gain is considerably increased where the ration is limited. If possible provide a small grazing patch for the brood sow and her pigs, for which there is nothing better than Sudan grass in summer and barley or oats with rape for winter grazing.

Curing pork is not only a matter of making it keep. It must be put up in such a manner that it will make a desirable food. Not only must it be tasty when first cured, but it should stay that way for twelve months. Brine curing is recommended in preference to the dry salt method.

There are several formulas for making this brine, the following being a good one and will cure 100 pounds of pork:

10 gallons water	5 lbs. brown sugar
20 lbs salt	5 ounces salt peter

Bring the water to a boil, then add the salt. Stir this about a minute, then add the sugar and salt peter. Continue to stir until all is dissolved. Allow this to cool and the brine is ready.

It is preferable to kill the hog in the afternoon. Cut up the meat and rub salt on it, spread it out and allow to stand over night. In the meantime, make the brine as directed and allow to stand over night.

The next morning, pack the meat in a barrel. Pack the hams and shoulders first, with the **skin side up**, then pack the side meat with **skin side up.** Put a weight on the meat and then pour the brine over

it. Let it stand in this manner for three weeks. At this time, take out the side meat and hang up to drip. Weight the hams and shoulders down in brine again and leave them there another ten days. After this time, take these out and hang up to drip. When all the meat has dripped dry, smoke it and then wrap it. This is usually done by wrapping first with newspapers and then with cotton sacking. Be sure to sew the cloth on tight so that no bugs or flies can get to the meat. Sew on a strap to hang the package with. Hang in cool place and you will have as good meat as you can buy during the entire year.

THE FARM FLOCK

Next in importance to the milk cow, a flock of twenty-five hens will furnish a valuable addition to the daily food supply. From this number sufficient eggs can be secured to provide for each member of the family every day and enough eggs can be set to increase the flock in sufficient numbers to replace those that are removed during the season. It is better to use standard breeding fowls, if possible, and it is of importance that they be kept in a healthy, vigorous condition. If the flock can be increased to 100 hens comfortably housed and properly fed, they will not only furnish the necessary amount of eggs and a considerable supply of meat for family use, but will also produce surplus eggs for market. The profit from these eggs will, in large measure, pay the necessary grocery bills for the products that cannot be raised on the farm.

This number of hens does not require a large expensive house, but it is important that the house be comfortable, well ventilated and dry. A patch of winter oats close to the barn will furnish an abundance of green food for the flock during the winter time.

Poultry produces a greater profit for the amount of expenditure than any other kind of live stock on the farm as a large part of their food supply is secured from what would otherwise be wasted.

Turkeys may profitably be added to the poultry flock as they can be raised for very little expense for feed, and on account of the fact that they forage for insects almost constantly during their growing period.

A flock of 25 hens will nearly pick up their living foraging about the barns and corrals and will require only a limited supply of grain feed, but if the flock is increased to 100 hens then provisions should be made for a regular ration suitable for egg production. If this is not done, a flock of 100 hens may not be so profitable as a flock of twenty-five.

Those interested in poultry and turkey raising should consult the County or Home Demonstration Agent or write to the Extension Service for bulletins L-1, C-51, and C-52.

FEED FOR THE WORK STOCK

It is just as essential in a safer farming program that the feed for the live stock be produced on the farm as it is that the food for the farm people should be produced on the farm. Unfortunately many black land and bottom land farms are not organized on this

plan. It is not uncommon for these farmers to purchase all their feed supplies, and when low price cotton overtakes them as in the present year it takes more than the value of their cotton crop to purchase the necessary feed, and they are unable to meet their current obligations. The production of feed crops on the farm is an insurance against such a calamity, and the farmer who has an abundant supply of feed and forage should be accounted a much safer risk for a loan than one who necessarily has to borrow money for the purchase of feed supplies.

In the production of cotton the teams are in the field practically only one-half of the time, or approximately 150 days. During the time they are out of work they are usually turned in the pasture. The amount of food that can be secured from pasture is, however, subject to wide variation, and if the teams are to be kept in good condition, a supply of grain and roughness must always be kept on hand to be utilized as necessary. Under normal condition there should be approximately two acres of pasture for each work animal on the place. In addition to this pasture each work animal will require approximately 3,000 pounds of grain, either corn, oats, or grain sorghums, and 4,000 pounds of hay. The amount of land required to produce this grain and hay would vary in the different parts of the State, but a sufficient acreage should be planted each year to insure an adequate supply sufficient to meet the maximum demands. Based on the average production in the State a farm having four work animals, one cow, one brood sow and four pigs, and a flock of 100 hens should grow for feeding this live stock: twelve acres of corn, oats or grain sorghums for grain; three acres of sorghum for hay; two acres of Sudan grass for summer pasture.

Feeding practices for the work stock will depend very much on how hard the animals are worked and on the quality of pasture available. If the fields are fenced there is always a considerable amount of forage left after the crops have been gathered which can profitably be used for the live stock.

SAFER FARMING MUST PRODUCE A CASH INCOME FROM TWO OR MORE MAJOR PRODUCTS

When farming depends on only one source of income the risk element is much greater than when the income is derived from two or more sources. The farmer who produces but one product for sale is at the mercy of fluctuating prices. Over production and resulting low price always threaten. Farming is risky enough at best, and drought, or flood, pests and disease, may alway be reckoned with. Diversified farming offers the safest way of meeting risks both of low prices and low yields.

Cotton is logically the major product for most Texas farms. Whatever else is added ought to fit in with the scheme of things without too much conflict in labor. As a general principle of farm management it is considered very risky to suddenly replace a well established major crop by what has hitherto been a minor crop. Experienced farmers are always cautious about making radical de-

partures from the established farm practice of their communities. There are, however, several important crops that can be used to supplement cotton. Corn offers possibilities over a wide area, and grain sorghums may take the place of corn where dry, hot weather cuts corn yields below profitable prodution. The acreage of wheat, oats and barley should be increased, especially in the Central Texas black land belt where root rot is prevalent. On sandy soils peanuts and sweet potatoes offer opportunities as minor cash crops and where markets are available farmers may plant a few acres of truck as a profitable sideline.

The question of markets is equally important as soil adaptation in working out a farming program contemplating the reduction of the cotton acreage and the growing of some other cash crop on the acreage released. This is especially true where perishable truck or fruit crops are produced. The success of tomato growing in East Texas and of spinach and onion production in southwest Texas has been brought about in large measure by the work of efficient marketing organizations and the growing of the product in sufficient quantities to attract car lot buyers and shippers. Where a sufficient and reliable supply of fruit and vegetables suitable for canning can be guaranteed, enough interest may be aroused to establish canning and preserving plants. Some of these have been operated on a cooperative basis, but those that have been most successful have been privately owned and operated. The success of the fig industry in South Texas is due in large measure to the market for the fruit established through the preserving plants.

OPPORTUNITIES IN LIVE STOCK PRODUCTION

Live stock production should always be a complement to the production of feed crops on a well organized farm. In some instances live stock farming is the major enterprise and the amount of live stock kept on the farm is greater than the farm in itself can support. This condition prevails on some dairies located near large cities where the land holdings are relatively small. This intensive kind of live stock farming presents a problem foreign to the general consideration of a live stock program as a part of a safer farming program. The general advantages of live stock on the farm may be summed up as follows:

1. They provide a means of utilizing pasture land, and converting bulky forage crops, and some unsalable products, into meat or meat products that can be sold for cash.
2. Live stock utilizes labor throughout the entire year.
3. Live stock distributes the income in different periods of the year, and certain types of live stock farming provide a monthly income.
4. Manure from live stock properly applied to the soil will increase its productivity.

The kind of live stock to be kept on a farm will depend upon the inclination of the farmer and market facilties. Some men will succeed best with dairy cows, some have a preference for beef cattle, and others would prefer to have sheep or hogs. As a rule, sheep fit

in better with beef cattle, and hogs are more likely to be found on dairy farms, although there is no reason why other combinations might not be successful.

BEEF CATTLE

Cattle should have a place where pasture is available or cheap forage is abundant. Many farmers may keep cows for milk production, in which event the raising of calves for beef purposes becomes only an incident to the main object in farming. Growing cattle may be regarded as being nearly always profitable, even though a big cattle business might not be possible. Good young beef is always in demand and many farms of from 100 to 120 acres are annually wasting enough feed and forage to fatten from six to eight head of young cattle.

Texas produces more feeder cattle than any other State in the Union, and unfortunately the most of these feeder cattle are sold to northern farmers and finished for market on feed crops and corn produced in Illinois, Indiana, and Iowa. Demonstrators in the production of baby beef on the farms have been shown that with proper care and the right kind of feed a very satisfactory finish can be put on these steers and calves on Texas farms. There is a market demand for well finished young animals of the right kind of type. While it might be impossible in some instances, for one farm to feed a car load of this class of cattle, cooperative efforts might be made in securing a car load to be distributed to different farmers in a community to be fed so as to be ready for shipment to market at about the same time. Cooperation of this kind in buying, feeding and selling would enable the farmers who operate on a small scale to engage in an enterprise that should prove profitable.

SHEEP

Texas farmers have taken less advantage of the opportunity of making money from sheep than any other class of live stock. Sheep raising, for the most part, has been delegated to the ranchmen who count their flocks by the thousand head. There is no economic reason why sheep raising could not be made a part of the live stock program on thousands of small farms. Sheep require little attention, and if kept free from diseases and protected from wolves and prowling dogs, they will produce a good return in wool and meat. A small flock on the farm will obtain their living largely from products that otherwise would go to waste.

The feeding of sheep and lambs for market purpose is an industry that should receive careful consideration from those farmers who produce a surplus of corn or grain sorghums. The best results are secured when these grains are mixed in proper proportion with cottonseed meal, or when they are fed in combination with alfalfa hay. Green pasture of winter grain will also help greatly.

DAIRY FARMING

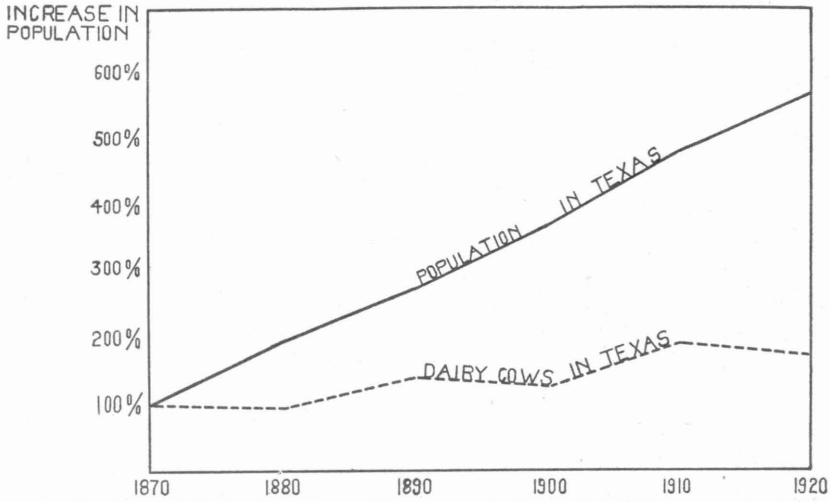
Dairy farming or the keeping of dairy cows on the farm is receiving a great deal of publicity at the present time, and this branch

of live stock farming should prove profitable in every part of Texas if the cows used in the dairy are adapted for that purpose and if they are properly housed and fed.

The average farm in Texas can add from one to five good dairy cows to its farm live stock operations and if properly handled they should prove to be a continuous source of income. January 1, 1926, Texas had 936,000 cows and heifers two years old and over kept for milk. At the same time the population of Texas was reported to be 5,000,000 people. According to these figures, this would give a ratio of over five people to one cow in Texas. Statistics further emphasize the fact that since 1870 the number of people has greatly increased while the number of dairy cows in Texas has only slightly increased.

The average Texas dairy cow produces about 215 gallons of milk each year. This will furnish less than one pint of milk each day per person, which is about one-half the milk each person should consume. It will require at least a million cows with the production of the present Texas dairy cow to supply enough dairy products for the Texas people if each person consumes a quart of milk a day. The equivalent of a quart of milk can be consumed in many forms of dairy products of which butter is one of the chief. Between ten and eleven million dollars worth of butter is shipped to Texas each year. Practically all farms in Texas are so located that butter fat can be delivered to a cream station or direct to a creamery. Sometimes butter fat can be delivered daily to a sweet cream creamery which usually pays for butter fat from ten to fifteen cents a pound above the sour cream price. Furthermore, the skim milk offers another source of profit when fed to pigs and poultry on each farm.

It is plain that farmers living within the State of Texas are nearer to this demand for dairy products and can supply the products with less transportation charges than farmers from other states.



Population in Texas has increased 500 per cent. in the last fifty years. During the same period of time dairy cows have increased in number less than 50 per cent.

It can be clearly seen that it will be a number of years yet before Texas will be able to produce the dairy products that she consumes. This should be proof enough that dairying should receive careful consideration from the farmer in planning his year's activities since it has possibilities for furnishing a steady source of income over a reasonably long period of time.

HOGS ON THE FARM

There is a great opportunity for the farmers of Texas to supplement their farm income by producing hogs for the market, in addition to the number of hogs required for meat purposes. This has been conclusively demonstrated and proven by the Ton Litter Contests that have been conducted the last four years. Some cotton farmers in Central Texas produced their hogs in the Ton Litter Contest in 1923-1924 at a cost of six cents per pound after they had paid $1.20 per bushel for the corn. They sold these hogs for eight cents per pound. This, we think, is about as adverse a condition for making money on hogs as will ever be experienced in Texas. Hence, if the farmers of Texas will follow the methods used by these Ton Litter Contestants, they should make some money on hogs every year in Texas. If the farmers of Texas will feed their hogs the way the ton litters are fed, twelve bushels of corn will produce a two-hundred pound hog, including the corn fed the sow. On this basis, one acre of corn will produce two hogs. The profit per hog in the Ton Litter Contest in 1923-1924 was $12.00. This would give a per acre profit of $24.00. This is above the average acre profit on cotton.

There are several things in regard to swine management and feeding that farmers should know and keep in mind if they produce hogs as cheaply as indicated above. The first thing is to provide a pasture, if possible, using oats, barley, alfalfa, or burr clover for winter, and sudan grass, alfalfa or clover for summer. If it is not possible to have a pasture, be sure to make the pen large enough to allow the hogs plenty of exercise.

HOW TO FEED FOR PROFIT

Always keep a mineral mixture before the hogs. If it is the right kind of mineral mixture, it will aid the appetite and digestion, supply bone material for their bodies, and keep down worms.

It is very important that the pigs be weaned in the proper manner to prevent stunning at weaning time. They should not be weaned before they are eight weeks old. The sow and pigs should be run together in the pen, or pasture, where the pigs are to be kept after weaning. Then take the sow away from the pigs, leaving the pigs in the place that they are accustomed to being. The majority of people reverse this operation.

It is very important that the feeding be done correctly if hogs are to be produced at a profit under adverse conditions such as we had in 1923-1924. The average farmer feeds corn and kitchen slop, and sometimes this is supplemented with shorts. This does not constitute a balanced ration, and a ration that is not balanced will not

prove as profitable as one that is. A ration to be perfectly balanced should contain the proper proportion of protein, carbohydrates, and fats, the ration must contain both an animal and vegetable protein, both animal and vegetable carbohydrates, and both animal and vegetable fats, also the proper amount of mineral and vitamines. Corn alone, or corn supplement with kitchen slop or shorts, or both does not contain all of these requirements. There are a great many feeds available that are rich in protein and contain some mineral and vitamines; namely, milk in any form, cotton seed meal, peanut meal, tankage, alfalfa meal, soy beans, cowpeas, etc. However, no one of these feeds combined with corn will make a perfectly balanced ration. You can combine corn and cotton seed meal in the right proportion to get the proper proportion of protein, carbohydrates, and fat, but you would not have all of the required minerals and vitamines, neither would this combination contain both animal and vegetable proteins, carbohydrates and fat. In order for a pig to make the most rapid gain, and hence the most economical gain, it must be fed a ration that contains every element required in the making of its body, and to be economical a ration should be fed that contains these elements in the proportion required by the pig's body, so that there shall be no waste of any of the elements. Corn and milk in any form comes the nearest to being a correctly balanced ration of any two feeds that can be combined. The following is an example of a balanced ration, that has been used by some of the Ton Litter Contestants, and is now being used by several hundred farmers in Texas in their common every day practice. The ration is: to feed one pound of what is termed protein supplement, with the kitchen slop, or slop made of water, and then feed all the corn, or grain sorghum, that the pigs will clean up. This pound of protein supplement is made as follows:

¼ pound tankage	⅛ pound alfalfa meal
¼ pound wheat shorts	3/16 pound ground oats
⅛ pound cotton seed meal	1/16 pound bone meal

If you feed this one pound of protein supplement per day per pig with all the corn that it will eat, the ration is balanced at all times regardless of age or size of the pig. This simplifies the problem of feeding a balanced ration for hogs, and makes it as easy to feed a balanced ration as it is to practice careless feeding, as is ordinarily done by the average farmer of Texas. You simply mix one pound of the protein supplement for the pig with slop and then feed the corn as usual.

HEALTH NECESSARY FOR PROFIT

It is also important that farmers understand and practice swine sanitation. If swine are kept in sanitary quarters and have an abundance of good fresh pasture and a balanced feed, many of the ills that hogs are subject to may be largely prevented. Not only infection from worms and filth-borne disease will be greatly lessened, but pigs properly fed and cared for are better able to resist disease than those low in vitality. Pigs that are infected with worms and

lice cannot be expected to make profitable gains. Lice may be readily eradicated by either dipping the hogs in crude oil, or rubbing the crude oil on them with a mop. In the latter case, be sure to get the oil all over the hog. In case crude oil is not available, the oil drained from the crank case of the car or tractor may be used. The hogs sleeping quarters should also be liberally sprayed with this oil. Since pigs are most susceptible to infection and suffer most seriously from worms during the first few weeks, it is necessary that great care be exercised in preventing worms at this time. The best method of prevention is what is termed the McLean County System. This system is to thoroughly clean the farrowing pen and then scrub it out with boiling water and lye, using one pound of lye to ten gallons of water. This should be done before the sow is placed in the pen. Before the sow is placed in the farrowing pen, she should be cleaned carefully of all mud and dirt and washed off with a disinfectant so as to destroy any worm eggs that might be adhered to her body. The sow, or pigs, should not be allowed to get out of this pen until they are taken out by wagon to some clean pen, or pasture. If they are driven out, they are liable to pick up worm eggs on their feet and get them in the feed trough.

If the pigs get infested with worms, a good home remedy is to dissolve one ounce of copperas in a quart of warm water and add this to the slop for ten pigs for five successive days, and then repeat in about three weeks. Or they may be given one-half teaspoonful of oil of chenapodium mixed with two ounces of castor oil—this dose is for a fifty-pound pig, double dose for a hundred-pound pig.

The farmers of Texas who will handle their hogs as outlined above, will consistently make money on their hogs regardless of the price of feed, or the price of hogs.

INCREASING FARM EFFICIENCY

There is a wide variation in the cost of operation of different farms and there is also a wide variation in the production per acre and in the returns per unit of labor expended. Modern manufacturers have long since learned that profit in the manufacturing business depends in large measure upon efficiency of the plant, and the same rule applies to the operation of a farm. Safer farming means more efficient farming, and more efficient farming demands that every acre be required to produce its maximum and every animal be required to efficiently use every pound of feed given to it.

Farm values increased very rapidly during the war and during this same time land assessments and taxes were also increased. This added burden of expense must be met by increased production per acre. The majority of Texas farms have been in cultivation many years, and as a result of the drain on their fertility, production per acre has on these lands steadily decreased. The time has arrived when careful consideration should be given to the improvement of the land. The first thing to look to is its physical condition. Land in cultivation that is the least bit hilly is inclined to wash, and much of the best soil is drained off into the valley. This washing should

be stopped by terracing these fields with broad terraces that will check the rapid run off of the surface water and protect the fields from washing. This work can be done at any time during the year when there is no crop growing on the land. It is not necessary to terrace the entire farm at one time, but a complete system of terracing can be laid out and completed in part as opportunity comes.

Soil that has been in cultivation many years will probably be found to be deficient in organic matter. This can be restored by plowing under the residue of crops, or growing a crop on the land for the particular purpose of green manure and plowing it under. There are not sufficient animals kept on Texas farms to provide any adequate supply of manure, and for this reason especial care should be taken to plow under all crop residue such as corn stalks, straw, pea vines and cover grass.

In some localities maximum production is impossible on account of the lack of drainage. The condition will be found in some bottom lands, and also on some irrigated land. Any excess water in the field that hinders growth of plants should be drained off, and in a locality where this condition prevails an adequate drainage system must be provided if these fields are to be profitably cultivated. If drainage cannot be provided, then the land should be left in pasture for wet land cannot be properly cultivated. If soils are well drained or terraced to prevent washing and well supplied with organic matter, they will produce abundant crops if the necessary plant food is in the soil in sufficient quantities. If the plant food has been depleted by constant cropping, the production will invariably be increased by the use of commercial fertilizers containing these elements of plant food in an available form. Just how much fertilizer to use or what kind to use depends upon the crop and the soil, and those intending to purchase fertilizers should secure the advice of their county agent or the college so as to make sure their investment will be intelligently made. It is important to remember that there are three essential elements of plant food—nitrogen, phosphoric acid, and potash—and the commercial value of the fertilizer depends upon the relative amount of these three ingredients in the material offered. Soil building or soil improvement is, at the best, a slow process, and farmers should remember that it is much easier to exhaust the fertility of the land than it is to restore it.

Efficiency in management of the farm will demand a careful study of the equipment and labor necessary to operate it. It takes no more feed to keep a team than it did in 1914, but the labor cost of driving the team has increased 100 per cent. If through the use of larger machinery, tools, and implements the number of mules in charge of one driver can be increased, it will be possible to reduce the labor cost of operating plows, harrows, and cultivators. Where work is done with hoe, however, or by hand labor, the amount accomplished per unit of man hours is no more than it was in 1914, but the cost of this work has increased 100 per cent. It would seem important, therefore, to arrange the farming program so as to do as much work

as possible with teams with the minimum amount of hand labor that must be hired.

There is much waste of energy and loss of time on many farms due to inadequate equipment in fences, gates and buildings. Where live stock is kept and fences are not adequate there is not only damage to crops from depredation of live stock, but there is a loss of time necessary to herd them back into the enclosure and repair the fences or gate. It is economy to spend the time and the money necessary for repairs to put the fences and gates in good condition, and, if possible, this should be done before the spring work begins.

Heavy corner posts and heavy gate posts well braced are essential in building a good fence.

The water supply on the farm should be adequate and conveniently arranged so that the work stock and other animals will have fresh drinking water available at all times. It ought not to be necessary to drive the animals to the pasture or tank to give them water, and it ought not to be necessary to spend time drawing water from a well bucket, for either the house supply or the supply for the live stock.

On many farms a tractor has an important place. On the wheat farm it may displace all the mules, but on land cultivated in cotton and corn, there will always be need for teams. The efficiency of the tractor depends, in large measure, on the mechanical care it receives, and where the entire operation of a farm depends upon motive power of this kind, it should be kept in the highest possible state of efficiency. A break down at harvest time due to defective machinery may mean the loss of hundreds of dollars, and time is such an important factor in work of this kind that no chances of delay should be taken. The difference between success and failure in the management of farms can often be found in the care given the equipment and motive power. This applies to mules and horses as well as tractors.

HOME GARDENING AND ORCHARDING

Home gardening, bush and vine fruit production, and orcharding, provide food for the family, assist in labor distribution, and contribute a proportionate return to the farm income each year.

Whether it be in the city or on the farm, the question of gardening and orcharding is, or should be, of vital interest to everyone. The garden provides a supply of vegetables at home that is entirely without transportation or handling costs. It is estimated that the family garden, if properly handled, will produce each year from $150 to $200 worth of vegetables, if valued at market price.

The home production of fruit should have a place in every farm program. Few localities in Texas have soil and climate conditions unsuited for the production of some type of fruit. In San Saba County, located in Central West Texas, a six year old home orchard of ten acres of peaches and plums produced $1400 worth of fruit in 1926, at a cost of less than $250 for labor, spray material and inter-

est on investment. There is usually a strong demand in local town and city markets for fruit of good grade and quality.

Bush and vine fruits, such as dewberries, blackberries, strawberries and grapes, although perishable products, can usually be depended upon to contribute a timely farm commodity for home useage or for the local market. Excessive acreage planted to most any perishable crop, with no definite knowledge of future market conditions, have proved itself a hazardous practice.

In those sections of Texas where pecan trees produce regular crops, it is unexcusable to overlook the possible financial returns from this source. Along the creek or river fronts, pecans flourish on land that frequently "lays out" due to overflows or weed infestation. The low cost of production makes pecan growing attractive both from a crop return viewpoint, and also through the resulting increase in land values.

MARKETING FARM PRODUCTS

The question of marketing has an important bearing on a safer farming program. In many instances production of certain products are stimulated beyond local market demands, and through lack of organization, standardization, and concentration of all products, outside buyers are not attracted and facilities for reaching outside markets are not available. Local organizations looking towards the handling of problems of this kind are of vital importance on account of the fact that the average farmer is not in position to produce in sufficient quantity to ship in car load lots. This applies to live stock as well as fruit and perishable truck crops. Cooperation in marketing is essential to the success of many of these enterprises, but any attempt in cooperative marketing should be preceded by cooperative planting or preparation and uniform grading. In many counties in Texas cooperative live stock shipping associations have been successfully organized, cooperative creameries have established a market for sweet and sour cream, cooperative egg circles have developed better markets for eggs, and cooperative shipments of poultry have been very successful. Statewide organizations for the cooperative marketing of cotton, wheat, hay, and other staple crops also offers opportunities to the farmer to avail himself of the advantages of better grading, warehousing, insurance, and other factors that have much to do with lessening the cost of marketing, as well as an opportunity of securing an advanced price over the local quotations. Safer farming means more business in farming and a more extensive utilization of all agencies that will secure a better market and a better price for the product offered.

INSECT CONTROL

A farm program can hardly be called a safe one that does not take into consideration the damage that may be caused by insects and their control. Infestation by insects is as uncertain as the weather itself, and while in some seasons crops may be produced with little damage and without special attention to insects, farmers ought to

be prepared to take up measures of control should an infestation occur. This is just as important in a program that includes a variety of crops and the planting of gardens essential to a "Live at Home" program as it is in the production of any one crop. In fact, in the case of orchard, garden, and truck crops it is more important since the crop is far more valuable per unit area.

Detailed directions for the control of the numerous insects liable to damage crops cannot be given in the brief space allowed here. A few words, however, regarding the eating habits of insects with a suggestion as to materials to be applied against the two classes should enable farmers or truckers to meet the attacks of most species. Insects with biting mouth parts that chew the leaves, and whose habits in this respect can be determined by the ragged appearance of the leaves or the holes eaten in them, can usually be controlled by sprays or dusts of the three common arsenicals, named in order of preference and safety as (1) lead arsenate, (2) calcium arsenate, and (3) Paris Green. The other class of insects are those that have sucking mouth parts; they merely suck the sap from the leaf and cause it to wither, turn yellow and die. These cannot be controlled by the arsenicals, but must be attacked by what are known as contact sprays, such as oil emulsions or tobacco preparations. The latter, from the standpoint of safety to the plant, is preferable and in recent years it has been found that nicotine sulphate, one of the tobacco preparations, mixed with lime and applied as a dust can be used with greater convenience and effect than the liquid sprays.

Cultural measures are of great importance. These will include clean culture to keep down weeds which are breeding places of insect pests, plowing under of crop residues immediately after harvest, fall and winter plowing and harrowing, and burning of trash in waste places during the winter time when insects may be found sheltered under such material.

Since an insect infestation often occurs suddenly and the damage is done quickly, farmers are advised to have a small initial supply of proper insecticides on hand on the farm, or at least to be certain that a supply is available.

For detailed information on the control of particular insects, consult your County Agent or write to Entomologist of Extension Service, of the A. and M. College.

THINK!

WHAT A ONE CROP SYSTEM MEANS

Poor soil
The Credit System
Work unevenly distributed
Cotton money sent away from home for Farm Products
Scarce money and higher rates of interest
Small crops
Injurious insects and plant disease
Poor people, poorly equipped farms, uncomfortable homes, bad roads, poorly paid teachers and preachers.

BURLESON COUNTY FIVE YEAR FARM PLAN

I. The Building Up of The Soil

1. By terracing the farm and pasture lands
2. By ditching the farm
3. By Better rotation of crops
4. By proper use of commercial fertilizer

II. Increased Yields Per Acre

1. By fall and winter plowing
2. By better seed selection, for planting
3. By 5 acre demonstrations, more cotton on less acres
4. By 5 acre demonstrations, more corn on less acres

III. More and Better Cash Crops

1. By cooperative standardization of cotton
2. By cooperative production and marketing poultry
3. By cooperative production and marketing dairy products
4. By cooperative production and marketing watermelons
5. By cooperative production and marketing irish potatoes
6. By cooperative production and marketing sweet potatoes

IV. The Improvement of Farm Poultry

1. By culling the farm flock
2. By the use of better breeds
3. By growing more poultry and feed crops
4. By poultry farm demonstration, 100 pure bred hens, Certified

V. The Improvement of Farm Live Stock

1. By the use of pure bred sires
2. By culling out the scrubs,---or boarders
3. By growing more feed and forage crops
4. By club organization

VI. Better Farm Management

1. By farm accounting
2. By manufacturing farm products for the markets Such as canning of fruit, vegetables, and meats
3. By more tree Culture, Such as Fruit and Nuts

VII. A County Agricultural Advisory Board

1. To provide a program of rural life education
2. To promote Boys and Girls club work
3. To create and promote "THE COUNTY PLAN"

We Believe In { Burleson County / Her People / Her Soil

We Live to Build { Our Church / Our School / Our Home

But When We Build The Land We Build All

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In Cooperation With The United States Department of Agriculture and The A. & M. College of Texas

REMEMBER!

The Devil was a citizen of heaven until he began knocking on his own Country

BE A STAR OF LIGHT

and

Lead the way to better living on the Farm

The above program of development is printed in full for the purpose of showing a comprehensive plan of community building in which all citizens are interested. Similar plans have been adopted by many Texas counties.

The following list of bulletins pertaining to safe farming will be mailed free to those making application for the same. Address your inquiries to Extension Division, C. H. Alvord, Director, College Station, Texas, and list bulletins by number.

Fruit and Garden

B-29-A—Peach Culture in Texas
B-55—Pecan Propagation in Texas
FB-157—The Propagation of Plants
FB-1001—Fruit Growing for Home Use
FB-1044—City Home Garden
FB-1242—Permanent Fruit and Vegetable Garden
FB-1371—Vegetable Diseases and Insects

Poultry Raising

L- 1—Care and Feeding of Young Chicks
C-42—Poultry Diseases and Insect Pests
C-51—Profitable Egg Production
C-53—Backyard Poultry Equipment
B-65—Poultry Houses in Texas
FB- 287—Poultry Management
FB-1409—Turkey Raising

Hogs

C-12—Feeding and Care of Brood Sow and Litter
C-20—Hog Marketing Suggestions
C-21—Forage Crops for Hogs in Texas
C-27—Selecting a Gilt
C-28—Starting with the Pig
C-30—Feeding the Market Pig
Circular 309—Curing Meat
FB-1437—Swine Production

Dairy Cow

C- 7—Feeding the Dairy Cow
FB- 743—Feeding of Dairy Cows
FB-1336—Feeding Young Dairy Stock

Beef Cattle

FB1073—Growing Beef on the Farm
FB-1179—Cottonseed Products for Live Stock
FB-1135—The Beef Calf
FB-1395—Beef Cattle Production in the Range Area
Misc. Cir. 12—A Handbook of Better Live Stock

Sheep

FB- 810—Equipment for Sheep Raising
FB- 840—Sheep Raising for Beginners
FB-1155—Diseases of Sheep
FB-1330—Parasitic Diseases of Sheep

Farm Engineering and Management

B-67—Waterworks for Texas Farm Homes
B-51—Terracing in Texas
FB-1030—Feeding Horses

Canning

C-55—Home Canning of Meat
FB-1471—Canning Fruits and Vegetables